

## VPA PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the VPA permit listed below. This permit is for the land application of Class B biosolids on agricultural or silvicultural land in Chesterfield County.

1.	<u>Permit Name and Address</u>		<u>Legal Name of Owner and Address</u>	
	Synagro Central, LLC-Chesterfield County 10647 Tidewater Trail Champlain, VA 22438		Synagro Central, LLC 10647 Tidewater Trail Champlain, VA 22438	
2.	<u>VPA Permit No.:</u>	VPA00836		
3.	<u>SIC Code(s):</u>	Industrial Group 071: Soil Preparation Services: 0711		
4.	<u>Facility Contact</u>			
	Synagro Central, LLC 10647 Tidewater Trail Champlain, VA 22438 McMahon, Steve<SMcmahon@SYNAGRO.com			
5.	<u>Permit Application Information</u>			
	Application submitted by:		Synagro Central, LLC	
	Address (if different than owner's address):			
	Application receipt date:		5/26/2012	
	Additional information requested:		1/14/2013	
	Additional information received:		1/24/2013	
	Application complete date		1/24/2013	

6. Permit Processing Information:

DEQ Regional Office:	Piedmont Regional Office
Site Inspection performed by:	Mark Mongold
Date of site inspection :	11/20/2012
Date of public meeting for permit application*:	1/7/2013
Permit drafted by:	Mark Mongold
Date permit drafted:	2/22/2013
Draft permit reviewed by:	Mark Alling
Date draft permit reviewed:	2/26/2013
Dates of draft permit public comment period	From: 2/26/2013
	To: 3/28/2013

\* A public meeting is only required for certain applications to authorize land application of biosolids, treated municipal wastewater and stabilized septage.

7. Permit Characterization

Permit Action	Facility	Permit Type
<input type="checkbox"/> Issuance	<input type="checkbox"/> Existing facility	<input checked="" type="checkbox"/> Biosolids distribution, marketing, storage, and land application
<input type="checkbox"/> Reissuance	<input type="checkbox"/> Proposed facility	<input checked="" type="checkbox"/> Frequent
<input type="checkbox"/> Revocation and reissuance	<input type="checkbox"/> Treatment Works	<input checked="" type="checkbox"/> Infrequent
<input type="checkbox"/> Owner modification	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Land application/storage of animal waste
<input checked="" type="checkbox"/> Board initiated modification	<b>Type of Facility/Permit</b>	<input type="checkbox"/> Land treatment of wastewater
<input type="checkbox"/> Interim authorization	<input type="checkbox"/> Municipal	<input type="checkbox"/> Industrial
<input type="checkbox"/> Enforcement action	<input type="checkbox"/> Industrial	<input type="checkbox"/> Municipal
	<b>Ownership</b>	<input type="checkbox"/> Land application of industrial sludge
	<input type="checkbox"/> Public	<input checked="" type="checkbox"/> Land application of water plant residuals
	<input checked="" type="checkbox"/> Private	<input type="checkbox"/> Land application of septage
	<input type="checkbox"/> Federal	<input type="checkbox"/> Water reclamation and reuse
	<input type="checkbox"/> State	<input type="checkbox"/> Pump and haul*
	<input type="checkbox"/> Animal feeding operation/poultry waste management	<input type="checkbox"/> Routine Storage of Biosolids
		<input type="checkbox"/> Other: _____
	<input type="checkbox"/> Reclamation system or satellite reclamation system	<input type="checkbox"/> Other: _____
	<input type="checkbox"/> Reclaimed water distribution system	
	<input type="checkbox"/> Other	

- \* Pump and haul of wastewater other than sewage. Pump and haul of sewage is regulated by the Virginia Department of Health in accordance with the Sewage Handling and Disposal Regulations (12VAC5-610).
8. Annual permit maintenance fee: \$100
9. Licensed Operator Requirements: *Certified Land Appliers required onsite during land application activities*
10. Reliability Class: *N/A*
11. Pollution Management Activity Description. *Land application of biosolids and water treatment plant residuals to agricultural and silvicultural sites within Chesterfield County, including 16 fields, totaling 1009.0 acres, as identified in the permit application. Application rates shall be in accordance with site specific nutrient management plans.*
12. Location Description. Site map attached.
13. Bases for Limits and Monitoring Requirements and Special Conditions.  
A. *Part I.A Limits and Monitoring Requirements. See Appendix A*  
  
B. *Part I.B through J - Special Conditions. See Appendix B.*
14. Compliance Schedules. *There is no compliance schedule associated with the permit.*
15. Changes to the Permit. This permit is being modified to include amendments to the VPA Permit Regulation that went into effect on September 1, 2013. New and amended regulatory requirements are being included in the permit as well as other regulatory requirements that were not previously identified in the permit.
- Authorization for the land application of alum based water treatment plant (WTP) residuals has also been added to the permit to eliminate the need for minor modification when a WTP is added to the source list.
- The permit has also been rearranged and reformatted into groups of special conditions that are related functionally or chronologically. New monitoring tables include biosolids standards (metals, pathogen and vector attraction reduction); residuals characteristics and loading rates (solids, nutrients); soils; and monitoring frequency. Footnotes from Part I.A. of the previous permit regarding reporting have been moved to the body of Part I.B.
- Specific changes to the permit are identified below; referenced permit sections are from the new permit:
- A. **The following special conditions have been added to the permit due to regulatory amendments:**
- 1) *Part I.B.1.a.(2)(e)- soils monitoring data for pH, available phosphorus and extractable potassium.*
  - 2) *Part I.D.1.d. and I.D.4. odor control plan requirements.*
  - 3) *Part I.D.5 maintaining a list of approved sources*
  - 4) *Part I.E.4. Notification of sign posting to DEQ with 24 hours after signs have been posted.*
  - 5) *Part I.E.5. Notification to DEQ within 24 hours prior to land application activity at a site.*
  - 6) *Part I.G.1. – 11. staging of biosolids up to 7 days at the land application site.*
  - 7) *Part I.H.1. – 3. On-site storage of biosolids on a constructed surface, up to 45 days for use on the site.*

- 8) *Part I.I.4 requires the use of lime stabilized biosolids or the addition of lime if the soil pH is < 5.5;*
- 9) *Part I.I.5 requires the addition of potash if the soil potassium is less than 38 ppm;*
- 10) *Part I.I.1. only biosolids or WTP residuals from approved sources shall be land applied;*
- 11) *Part I.I.3. maintenance of pollution and general liability coverage in the amount of \$2million.*
- 12) *Part I.I.6. landowner consent must be on a specific form or within 60 days of permit issuance the landowner shall be notified to complete and submit the new form.*
- 13) *Part I.I.8. certified land applicator requirements were expanded in the regulatory amendments including maintenance of a field log. And a certification statement has been added.*

**B. The following special conditions have been in the regulation since January 1, 2008 and are now being added to the permit to provide clarity:**

- 1) *Part I.B.1.b - submission of a copy of the notice and necessary information (NANI) received from the generators of biosolids land applied;*
- 2) *Part I.E.6 - Permittee to provide a NANI to the site operator, form provided;*
- 3) *Part I.F. transport requirements.*
- 4) *Part I.I.2. – restrictions for depth to bedrock or other restrictive layers;*
- 5) *Part I.I.3 - restrictions on depth to groundwater;*
- 6) *Part I.I.15. Silvicultural land application language has been added.*
- 7) *Part I.I.4 prohibits the alteration of biosolids after delivery to the permitted land application site.*

**C. The following special conditions have been deleted from the permit due to removal from the regulation:**

- 1) *Part I.C.3. of the old permit, change of ownership was removed and addressed in the new landowner agreement form;*
- 2) *Part I.C.14 of the old permit addressing frequent application was removed because it is addressed by the NM;*
- 3) *Part I.C.16.c. of old permit addressing frozen ground was removed; it is in DCR's NMP regulations; and*
- 4) *Part I.D. of the old permit Biosolids Storage Special Conditions have been removed from the permit, now addressed by staging and on-site storage.*

**D. Special conditions that have been modified from the previous permit due to the regulatory amendments:**

- 1) *Part I.E.3 signs will be posted 5 business days prior to and be maintained for 5 business days after land application, not removed for 30 days after land application, instead of 48 hours;*
- 2) *Part I.I.8. the grass will be at approximately 6" when biosolids are land applied; no longer allows clipping after land application or different heights for hay or pasture.*
- 3) *Part I.I.11. slope restrictions allow use of certain slopes greater than 15% with DEQ's pre-approval. Restrictions based on slope and time of year were removed because they are addressed in the NMP required for each site;*
- 4) *Part I.I.13. the setbacks from certain features to the land application area have changed, and*

*some new features have been added that require setbacks. In order for a citizen to obtain an extended setback from occupied dwelling or property line, a doctor's now is now required.*

**E. Special conditions that have been modified from the previous permit:**

- 1) *Part I.A.1- Included monitoring of WTP Residuals for Total Aluminum.*
- 2) *Part I.B.1 requires a certification statement specific to electronic submissions, presented in Part I.B.1.d.*
- 3) *Part I.B.3 The annual report requires pathogen reduction and VAR data for out of state WWTPs only; in state WWTP data will come in with their VPDES annual report.*
- 4) *Part I.C Record Keeping itemizes all records that must be maintained.*

16. Public Notice Information per 9 VAC 25-32-120.B: All pertinent information regarding the draft permit and application is on file at the DEQ-Piedmont Regional Office, and may be reviewed and copied by contacting Mark Mongold at 4949-A Cox Road, Glen Allen, VA 23060, by telephone (804)0527-5159, by email [mark.mongold@deq.virginia.gov](mailto:mark.mongold@deq.virginia.gov).

DEQ accepts comments by e-mail, fax or postal mail. All comments must be in writing and be received by DEQ during the comment period. Written comments must include: (1) the names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen; (2) if a public hearing is requested, the reason for holding a hearing, including associated concern; and (3) a brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. The public may review the draft permit and application at the DEQ office named below {by appointment}.

17. Attachments. List any attachments associated with this permit.

Attachment A	Listing of Land Application Sites
DEQ Site Map	VPA00836 Field Sites

18. Public Notice Information per 9VAC25-32-140: All pertinent information is on file, and may be inspected and copied by contacting Mark Mongold at: DEQ-Piedmont Regional Office, 4949-A Cox Road, Glen Allen, VA 23060. Telephone No. Phone Number, (804)-527-5159, e-mail [mark.mongold@deq.virginia.gov](mailto:mark.mongold@deq.virginia.gov) .

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

## APPENDIX A

## BASES FOR LIMITATIONS AND MONITORING REQUIREMENTS

**Monitoring Type:** Biosolids/Water Treatment Plant (WTP) Residuals Monitoring –

**Monitoring Location:** Final Biosolids or WTP residuals product after all treatment, prior to land application

## Part I.A.1.a. Metals Limitations

PARAMETER	BASIS FOR LIMITS	LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
Total Arsenic (mg/kg)	1,2,3,4,5	41	75	Part I.A.3	Composite
Total Cadmium (mg/kg)	1,2,3,4,5	39	85	Part I.A.3	Composite
Total Copper (mg/kg)	1,2,3,4,5	1,500	4,300	Part I.A.3	Composite
Total Lead (mg/kg)	1,2,3,4,5	300	840	Part I.A.3	Composite
Total Mercury (mg/kg)	1,2,3,4,5	17	57	Part I.A.3	Composite
Total Molybdenum (mg/kg)	1,2,3,4,5	NA	75	Part I.A.3	Composite
Total Nickel (mg/kg)	1,2,3,4,5	420	420	Part I.A.3	Composite
Total Selenium (mg/kg)	1,2,3,4,5	100	100	Part I.A.3	Composite
Total Zinc (mg/kg)	1,2,3,4,5	2,800	7,500	Part I.A.3	Composite
Total Aluminum	6	NL	NA	1/Year	Composite

NL = No Limitation, monitor and report

- (1) All constituents are subject to cumulative pollutant loading rates (CPLR), pollutant concentrations (PC), and ceiling limits. PC biosolids contain the constituents identified above at concentrations below the monthly average specified in Part I.A.1. CPLR biosolids contain the constituents identified above at concentrations above the monthly average and each sample must be below the maximum concentration specified in Part I.A.1. If the concentration of any of these constituents in biosolids from any source exceeds the monthly average concentration, then the biosolids from the source are subject to CPLR rules (Part I.A.1.b., Part I.C.3., and Part I.I.16.) [Bases 1 & 7].
- (2) All limits and criteria are expressed on a dry weight basis. [Basis 1]
- (3) The monthly average concentration for molybdenum is currently under study by USEPA. Research suggests that a monthly average Molybdenum concentration below 40 mg/kg may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 4]
- (4) Aluminum monitoring is required for WTP residuals only. All water treatment plant residuals generated at a WTP that uses any aluminum based coagulant are subject to Aluminum monitoring and the tracking of the aluminum loading at each field on which WTP residuals are applied. [Basis 6]

Bases for Residuals Limitations

1. 9VAC25-32-356
2. 9VAC25-32-356, Table 1
3. 9VAC25-32-356, Table 2
4. 9VAC25-32-356, Table 4
5. 9VAC25-32-358, Table 1
6. Guidance Memorandum (GM) No. 95-002
7. 9VAC25-32-313.C. & F.

## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Biosolids& WTP Residuals Monitoring (only applicable to biosolids subject to Cumulative Pollutant Loading Rates (CPLRs))

**Monitoring Location:** Calculated for each land application field where biosolids subject to CPLRs or WTP residuals are land applied

### Part I.A.1.b Site Specific Metals Loading Limitations

PARAMETER	BASIS FOR LIMITS	LIMITATIONS		MONITORING REQUIREMENTS	
		CPLR*		Frequency	Sample Type
		(kg/ha)	(lb/A)		
Total Arsenic	1	41	36	Each Application	Calculated
Total Cadmium	1	39	35	Each Application	Calculated
Total Copper	1	1,500	1,340	Each Application	Calculated
Total Lead	1	300	270	Each Application	Calculated
Total Mercury	1	17	16	Each Application	Calculated
Total Molybdenum	1	NL	NL	Each Application	Calculated
Total Nickel	1	420	375	Each Application	Calculated
Total Selenium	1	100	89	Each Application	Calculated
Total Zinc	1	2,800	2,500	Each Application	Calculated
Total Aluminum <sup>(1)</sup>	2	4,570	4,113	Each Application	Calculated

NL = No Limitations, monitor and report.

- (1) The CPLR is the maximum cumulative application of trace elements that can be applied to soils used for crop production. The maximum cumulative application rate is limited for all ranges of cation exchange capacity due to soil background pH in Virginia of less than 6.5 S.U. and lack of regulatory controls of soil pH adjustment after biosolids application ceases. [Bases 4 & 5]
- (2) All limits and criteria are expressed on a dry weight basis. [Basis 6]
- (3) No person shall apply bulk biosolids subject to the CPLRs identified above to agricultural land, forest, a public contact site, or a reclamation site if any of the CPLRs identified above has been reached. [Basis 5]
- (4) The maximum cumulative application for molybdenum is currently under study by USEPA. Research suggests that for Molybdenum a cumulative pollutant loading rate below 40 kg/hectare may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 1]
- (5) All sites that receive WTP residuals containing aluminum are subject to the tracking of aluminum loading, regardless of concentration of aluminum in the residuals. [Basis 3]

#### Bases for Residuals Limitations

1. 9VAC25-32-356, Table 3
2. EPA Process Design Manual - Land Treatment of Municipal Wastewater (EPA 625/1-81-013)
3. GM No. 95-002
4. 9VAC25-32-313.C. & F.
5. 9VAC25-32-356.B.
6. 9VAC25-32-356.A.

## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Biosolids Monitoring –

**Monitoring Location:** Final Biosolids product after all treatment, prior to land application

### Part I.A.1.c. Pathogen Reduction Requirements

BASIS FOR LIMITS	PATHOGEN REDUCTION ALTERNATIVE	PROCESS TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP) OPTION	CLASS B PATHOGEN REDUCTION TREATMENT STANDARDS	MONITORING REQUIREMENTS
1,2,3,4,5	1	NA	Fecal coliform monitoring: <2,000,000 MPN/gm or <2,000,000 CFU/gm, geometric mean of 7 samples. (9VAC25-32-675.B.2.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4,5	2	1	PSRP: Aerobic Digestion: Sludge mean cell residence time from 40 days at 20°C to 60 days at 15°C. (9VAC25-32-675.D.1.)	(2)
1,2,3,4,5	2	2	PSRP: Air dry in a drying bed for three months. Ambient average daily temperature must be above 0°C for 2 of the 3 months. (9VAC25-32-675.D.2.)	(2)
1,2,3,4,5	2	3	PSRP: Anaerobic digestion for a mean cell residence time between 15 days at 35°C - 55°C up to 60 days at 20°C. (9VAC25-32-675.D.3.)	(2)
1,2,3,4,5	2	4	PSRP: Composting at 40°C or above for 5 or more days, maintaining > 55°C for 4 consecutive hours during the 5 days. (9VAC25-32-675.D.4.)	(2)
1,2,3,4,5	2	5	PSRP: Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact. (9VAC25-32-675.D.5.)	(2)
1,2,3,4,5	3	PROCESS AS APPROVED	Process equivalent to PSRP: PROCESS AS APPROVED (9VAC25-32-675 B.4.)	(2)

NA = Not applicable

(1) Between sampling events, operating records must demonstrate that the Wastewater Treatment Plant (WWTP) is operating at a performance level known to meet pathogen reduction standards. [Bases 1. & 5.]

(2) Process monitoring must be sufficient to demonstrate compliance with PSRP treatment requirements. [Bases 1,2,3,5]

#### Bases for Residuals Limitations

1. 9VAC25-32-357.A - B
2. 9VAC25-32-675.B
3. 9VAC25-32-675 D.
4. 9VAC25-32-358.A.1, Table 1
5. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)



## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Biosolids Monitoring

**Monitoring Location:** Final Biosolids product after all treatment, prior to land application

### Part I.A.1.d. Vector Attraction Reduction Requirements

BASIS FOR LIMITS	VAR OPTION	VECTOR ATTRACTION REDUCTION TREATMENT STANDARD	MONITORING REQUIREMENTS
1,2,3,4	1	38% Reduction of volatile solids by digestion (9VAC25-32-685.B.1.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	2	When 38% reduction is not achieved by anaerobic digestion, 40 day bench study at temperatures between 30°C and 37°C to demonstrate further reduction of volatile solids <17%. (9VAC25-32-685.B.2.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	3	When 38% reduction is not achieved by aerobic digestion, 30 day bench study at 20°C to demonstrate further reduction of volatile solids <15%. (9VAC25-32-685.B.3.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	4	Specific Oxygen Uptake Rate of ≤ 1.5 mg O <sub>2</sub> /hour/gram total solids at 20°C (aerobically processes sludge)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	5	14 day aerobic process, temperatures above 40°C with an average temperature of >45°C. (9VAC25-32-685.B.5.)	(2)
1,2,3,4	6	Sufficient alkali is added to the sewage sludge to raise the pH of the sewage sludge to 12 or higher, and without the addition of more alkali, maintain the pH at 12 S.U. for two hours and then at 11.5 S.U. or higher for an additional 22 hours. (9VAC25-32-685.B.6.)	(2)
1,2,3,4	7	Where biosolids do not contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 75% (9VAC25-32-685.B.7.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	8	Where biosolids contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 90% (9VAC25-32-685.B.8.)	Part I.A.3. <sup>(1)</sup>
1,2,3,4	9	Sewage Sludge shall be injected below the surface of the land. (9VAC25-32-685.B.9.)	NA
1,2,3,4	10	Sewage sludge land applied shall be incorporated into the soil within 6 hours after application. (9VAC25-32-	NA

NA = Not applicable

(1) Between sampling events, operating records must demonstrate that the WWTP is operating at a performance level known to meet the VAR standards. [Bases 1, 2, 3, 4]

(2) Process monitoring must be sufficient to demonstrate compliance with VAR treatment requirements. [Bases 1, 2, 3, 4]

#### Bases for Residuals Limitations

1. 9VAC25-32-357.A & D
2. 9VAC25-32-685
3. 9VAC25-32-358.A.1, Table 1
4. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Biosolids/WTP Residuals Monitoring

**Monitoring Location:** Final Biosolids and WTP residuals product after all treatment, prior to land application

e. Biosolids Characteristics

PARAMETERS	LIMITATIONS		MONITORING REQUIREMENTS	
	Monthly Average	Minimum and Maximum	Frequency	Sample Type
Percent Solids (%)	NL	NA	Part I.A.3.	Composite
Volatile Solids (%)	NL	NA	Part I.A.3.	Composite
Total Kjeldahl Nitrogen (mg/kg) <sup>(1)</sup>	NL	NA	Part I.A.3.	Composite
Ammonium Nitrogen (mg/kg) <sup>(1)</sup>	NL	NA	Part I.A.3.	Composite
Nitrate Nitrogen (mg/kg) <sup>(1)</sup>	NL	NA	Part I.A.3.	Composite
Total Phosphorus (mg/kg) <sup>(1)</sup>	NL	NA	Part I.A.3.	Composite
Total Potassium (mg/kg) <sup>(1)</sup>	NL	NA	Part I.A.3.	Composite
pH (S.U.)	NA	NL	Part I.A.3.	Composite
Alkalinity as CaCO <sub>3</sub> (mg/kg) (If lime by weight is less than 10%)	NL	NA	Part I.A.3.	Composite
CCE as CaCO <sub>3</sub> (%) (If lime by weight is 10% or more)	NL	NA	Part I.A.3.	Composite

NL = No Limit, monitor and report

NA = Not applicable

(1) Expressed on a dry weight basis. [Basis 1.]

Bases for Residuals Limitations

1. 9VAC25-32-356.A
2. 9VAC25-32-358.A.1, Table 1

## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Biosolids & WTP Residuals Monitoring

**Monitoring Location:** Nutrient loading rates shall be calculated for each source of biosolids/WTP residuals land applied and each application of biosolids/WTP residuals to an application

### f. Nutrient Loading Rates

		LIMITATIONS				MONITORING REQUIREMENTS	
PARAMETERS	Bases	Conc. Lbs/Dry Ton	Field Application Rate	12 Month Field Loading	NMP Application Rate	Frequency	Sample Type
Biosolids/ WTP Residuals	1,2,3	N/A	(Dry Tons/Ac) (1)	(Dry Tons/Ac) (1)	(Dry Tons/Ac) (1)	Each application	Calculated
Plant Available Nitrogen (PAN)	1,2,3	NL	(Lbs/Ac) (1)	(Lbs/Ac) (1)	(Lbs/Ac) (1)	Each application	Calculated
Phosphate (P <sub>2</sub> O <sub>5</sub> )	1,23,4	NL	(Lbs/Ac) (1)	(Lbs/Ac) (1)	(Lbs/Ac) (1)	Each application	Calculated
K <sub>2</sub> O	1,2,3,5	NL	(Lbs/Ac) (2)	(Lbs/Ac) (2)	(Lbs/Ac) (3)	(2,3)	Calculated
CaCO <sub>3</sub>	1,2,3,6	NL	(Lbs/Ac) (4)	(Lbs/Ac) (4)	(Lbs/Ac) (5)	(4,5)	Calculated

NL = No Limit, monitor and report

- (1) The field application rate and 12 Month Field Loading shall not exceed the application rate specified in the nutrient management plan (NMP) for the application method used. [Basis 1]
- (2) Report the amount of K<sub>2</sub>O provided by the biosolids/residuals and supplemental K<sub>2</sub>O applied for each application where the soil test K is < 38 ppm Mehlich I. [Basis 5]
- (3) Report the K<sub>2</sub>O application rate recommended in the NMP for each application where the soil test K is < 38 ppm Mehlich I. [Basis 5]
- (4) Report the amount of CaCO<sub>3</sub> provided by the biosolids/residuals and supplemental CaCO<sub>3</sub> applied for each application where the soil test pH is < 5.5 S.U. Mehlich I. [Basis 6]
- (5) Report the CaCO<sub>3</sub> application rate recommended in the NMP for each application where the soil test pH is < 5.5 S.U. [Basis 6]

#### Bases for Residuals Limitations

1. 9VAC25-32-560.B.3.a.
2. 9VAC25-32-360.C.
3. 9VAC25-32-100.B.3.
4. 9VAC25-32-410.C.5
5. 9VAC25-32-560.2.e.
6. 9VAC25-32-560.2.d.

## Fact Sheet – VPA Permit No. VPA00836 – Chesterfield County

**Monitoring Type:** Soils Monitoring

**Monitoring Location:** All land application sites before sludge is applied.

### 7. Soil

PARAMETER	BASIS FOR LIMITS	LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Soil pH (S.U.)	1,2	NL	Prior to Biosolids Application ***	Composite
Available Phosphorus (Mehlich I - P)* (ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Potassium (Mehlich I – K)**(ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Calcium (mg/100 g)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Magnesium (mg/100 g)	1,2	NL	Prior to Biosolids Application	Composite
Zinc (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite
Manganese (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite

NL = No Limitation, monitoring required

\* Available Phosphorus shall be analyzed using Mehlich I or Mehlich III analytical procedure. If sample is analyzed using Mehlich III, results shall be converted to Mehlich I for reporting purposes.

\*\* Extractable Potassium shall be analyzed using Mehlich I analytical procedure or equivalent. If sample is analyzed using an equivalent procedure, results shall be converted to Mehlich I for reporting purposes.

\*\*\* For biosolids with a cadmium concentration greater than or equal to 21 mg/kg the soil pH sample must be less than 1 year old.

- (1) Soil samples shall be collected and analyzed in accordance with regulations promulgated under § 10.1-104.2 of the Code of Virginia and as outlined in the Biosolids Management Plan (BSMP).
- (2) All parameters except for pH shall be monitored on a dry weight basis.
- (3) Results of the soil monitoring specified above shall be used to develop the NMP in accordance with Part I.D.2.
- (4) No sample analysis used to determine application rates shall be more than 3 years old at the time of the biosolids land application.

#### Bases for Effluent Limitations

1. 9VAC25-32-460. A – C, Table 1
2. 9VAC25-32-560.B.2.e.
3. 9VAC25-32-560.B.2.c.

### **Monitoring Type: Frequency of Monitoring - Biosolids**

#### **Monitoring Location:.**

#### 3. Frequency of Monitoring

Frequency of sampling biosolids from each generator is based on the amount of biosolids produced by that generator that is land applied.

<sup>(1)</sup> Amount of biosolids (dry tons per 365-day period)	Frequency
Greater than zero but less than 320	Once per year
Equal to or greater than 320 but less than 1,653	Once per quarter (four times per year)
Equal to or greater than 1,653 but less than 16,535	Once per 60 days (six times per year)
Equal to or greater than 16,535	Per month (12 times per year)
<sup>(1)</sup> Note: Either the amount of bulk biosolids applied to the land or the amount of sewage sludge received by a person who prepares biosolids that is sold or given away in a bag or other container for application to the land (dry weight basis).	

WTP residuals shall be monitored once per year.

#### Bases for Effluent Limitations

1. 9VAC25-32-358.A., B., Table 1.
2. GM 95-02

## APPENDIX B

### BASES FOR SPECIAL CONDITIONS

Tabulated below are the special condition sections of the permit, with the bases for each of the permit special conditions.

Special Condition	Description and Basis for Special Condition
Part I.B.1	<b>Monthly Reporting:</b> 9VAC25-32-360-A and Fee Regulation 9VAC25-20-147.B requires submittal of a report by the 15 <sup>th</sup> of the month following the month in which land application occurred. 9VAC25-32-100.B.2 provides for DEQ to establish the reporting frequency based on the pollutant management activity.
Part I.B.1.a	<b>Biosolids/WTP Residuals Monitoring Data:</b> 9VAC25-32-80.I states that monitoring results shall be reported at the intervals specified in the applicable VPA permit in a format acceptable to the board. 9VAC25-32-100.B.1. – 2. provides for the VPA permit to require monitoring at a frequency sufficient to yield data representative of the activity and report at a frequency based on the pollutant management activity. 9VAC25-32-100.B.3. states that VPA permits may include Mass or other measurements for each pollutant of concern, as well as volume and other measures as appropriate.
Part I.B.1.b.	<b>Generator NANI:</b> 9VAC25-32-313.G requires the generator of biosolids who provides biosolids to a land applier, to give notice and necessary information to the land applier.
Part I.B.1.c.	<b>Monthly Activity Report:</b> 9VAC25-32-360-A and Fee Regulation 9VAC25-20-147.B requires submittal of a report by the 15 <sup>th</sup> of the month following the month in which land application occurred. Specific information to be provided is identified in 9VAC25-20-147.A. and B. 9VAC25-32-360 refers to maintaining a report and adequate records on biosolids application rates, and methods of application for each site.
Part I.B.1.d.	<b>Electronic Submittal Attestation Statement:</b> § 59.1-479 – 498, the Uniform Electronic Transactions Act provides for submission of paperwork electronically and the use of electronic signatures. No laws or regulations require hard copy submittal of original signatures in the VPA program.
Part I.B.2	<b>Land Application Fee:</b> § 62.1-44.19.3.P requires that a fee be charged to the generator of biosolids to be land applied in Virginia. The fee of \$7.50/dry ton of biosolids applied in the Commonwealth of Virginia is established by the Fee Regulation 9VAC25-20-146 and 9VAC25-20-40.A.3. Exemptions to the fee are provided in 9VAC25-20-50.C. 9VAC 20-60.D. establishes the due date.
Part I.B.3.	<b>Annual Report:</b> 9VAC25-32-360-B requires the submittal of an annual report postmarked by February 19 for the previous year. 9VAC25-32-100.B.3. provides for the VPA permit to require monitoring the volume of biosolids and other measurements as appropriate. 9VAC25-32-360.C requires reports be maintained verifying that sludge treatment for pathogen and vector attraction reduction be maintained by the generator and owner (of the permit). 9VAC25-32-80.G. requires the permittee to submit information requested by the board, within a reasonable time, to determine compliance with the permit.

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Part I.C.1.	<b>Records Retention:</b> 9VAC25-32-80.H.2 specifies that all records of biosolids activities, monitoring and reporting shall be maintained for at least 5 years.
Part I.C.2.	<b>Class B/PC Biosolids Record Keeping:</b> 9VAC25-32-359 provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.C.3.	<b>Class B/CPLR Biosolids Record Keeping:</b> 9VAC25-32-359 provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.D.1	<b>Biosolids Management Plan (BSMP):</b> 9VAC25-32-410 requires the permit holder to maintain and implement a BSMP consisting of permit application, NMPs and O&M manual and states that the BSMP is an enforceable part of the permit.
Part I.D.2.	<b>Nutrient Management Plan (NMP) Requirement:</b> § 62.1-44.19.3.C.8. requires that a NMP be developed by a person certified in accordance with § 10.1-104.2 for each biosolids land application site, prior to application of biosolids at the site. The statute also establishes conditions where the NMP must be approved by the Department of Conservation and Recreation prior to submittal at the time of permit application. 9VAC25-32-410.C.2 states that if conditions at the site change so that it meets one or more special conditions, the NMP will be approved prior to application at the site. 9VAC25-32-410.C.2, with which all biosolids operations must comply, requires that the NMP be submitted to the farmer/operator of the site, the Department of Conservation and Recreation, and the local government, unless requested in writing to not receive the NMP. 9VAC25-32-410.C.5, Table 1 requires the NMP to be approved by DCR prior to application based on soil phosphorus levels (Mehlich I).
Part I.D.3	<b>Operation and Maintenance (O&amp;M) Manual Requirement:</b> 9VAC25-32-410.D. and 9VAC25-790-260 – 300 identify minimum requirements to be included in an O&M Manual. Additional requirements are included in the BSMP 9VAC25-32-60.F.3.
Part I.D.4	<b>Odor Control Plan (OCP) Requirement:</b> 9VAC25-32.60.F.1. requires Generator's OCP and minimum content. 9VAC25-32.60.F.5.c requires Land Applier's OCP and minimum content.
Part I.D.5.	<b>Permittee Source List - Biosolids/WTP Residuals:</b> 9VAC25-32-305.D states <i>no person shall land apply, market, or distribute biosolids in Virginia unless the biosolids source has been approved by the board.</i> 9VAC25-32-60.F.1. requires that a list of sources that the permittee proposes to land apply in the permit application, which is part of the BSMP. Water Control Law and the VPA Permit Regulation do not require a permit modification to add a new source; therefore a source that is approved may be added to the Permittee Source List with administrative authorization. A source not previously or currently approved, must obtain approval before it can be land applied under a VPA permit.
Part I.E.1.	<b>100 Day Notification:</b> 9VAC25-32-515.A.1. requires written notification to the chief executive officer (CEO) or designee for the locality 100 days prior to the initial land application at a specific site and clarifies that the notice may be satisfied by DEQ's notice of the permit application, if necessary site information was provided in that notification.
Part I.E.2.	<b>14 Day Notification:</b> § 62.1-44.19.3.L. and 9VAC25-32-515.A.2. requires written notification to the department and the CEO or designee for the locality at least 14 days prior to land application at a specific site.

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Part I.E.3.	<b>Signage Requirements:</b> 9VAC25-32-515.B.1. requires a sign be posted at a land application site at least 5 business days prior to delivery of biosolids at the site and maintained on site until 5 business days after application is complete; the sign will not be removed until 30 days after land application is complete. 9VAC25-32-515.B.1.a. – b. addresses placement of the signs. 9VAC25-32-515.B.3. – 4. specifies construction, content, and maintenance of the sign.
Part I.E.4.	<b>Notification of Sign Posting:</b> 9VAC25-32-515.B.2. requires written notification to DEQ and the CEO or designee for the locality within 24 hours of posting, identifying where the signs have been posted, and identifies information required in the notice.
Part I.E.5.	<b>24 Hour Notification:</b> 9VAC25-32-515.A.3. requires written notice to DEQ and the CEO or designee for the locality no more than 24 hours prior to commencing activity at a site, including delivery. Include the source of material and only sites where land application activities or staging will commence within 24 hours.
Part I.E.6.	<b>Site Operator Notification and Information:</b> 9VAC25-32-313.I. states <i>The person who applies bulk biosolids to the land shall provide the owner or lease holder of the land on which the bulk biosolids is applied notice and necessary information to comply with the requirements in this article.</i>
Part I.F.1. – 5.	<b>TRANSPORT requirements:</b> 9VAC25-32-540.A. – E. identifies requirements for transport routes, vehicles, prevention of drag-out and track-out, clean-up of such drag-out and track-out and clean-up and reporting of spills.
Part I.G.1. – 11.	<b>STAGING:</b> 9VAC25-32-545.A. – B. Defines staging and provides procedural requirements for staging up to 7 days and daily inspections by certified land applier; procedural and notification requirements to be implemented if biosolids cannot be applied by the end of the 7 <sup>th</sup> day; and prohibits overnight staging in areas of Karst, areas identified by U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) as frequently flooded, and sites with on-site storage.
Part I.H.1. - 2.	<b>ON-SITE STORAGE Requirements:</b> 9VAC25-32-550.D.1., 3. - 10. Describes on-site storage and provides procedural requirements for staging up to 45 days, routine inspections by certified land applier; procedural and notification requirements; 9VAC25-32-550.D specifies on-site storage shall take place on a constructed surface at a location preapproved by DEQ and that biosolids stored on the site shall be land applied only at sites under control of the owner/operator of the site where the on-site storage is located; 9VAC25-32-550.C and D.2., 6. specifies permeability requirements for the pad and requires existing storage facilities to come into compliance with the amended regulation by 9/1/2014.
Part I.I.1.	<b>Infrequent Application:</b> 9VAC25-32-560.B.3.c. establishes infrequent application based on total crop needs for nitrogen.
Part I.I.2.	<b>Depth to Bedrock or Restrictive Layers:</b> 9VAC25-32-560.B.2.a. states depth to bedrock or restrictive layers shall be a minimum of 18 inches.
Part I.I.3.	<b>Depth to Groundwater:</b> 9VAC25-32-560.B.2.b. prohibits land application when seasonal high water table is within 18” of ground surface and requires use of USDA-NRCS soil survey maps and soil borings to verify groundwater depth.

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Part I.I.4.	<b>pH Management:</b> 9VAC25-32-560.B.2.c. requires the biosolids soil mixture have a pH of 6>0 S.U. or higher where cadmium in the biosolids is $\geq 21$ mg/kg. 9VAC25-32-560.B.2.c.d. requires the addition of lime or use of lime amended biosolids if soil pH is $< 5.5$ S.U..
Part I.I.5.	<b>Soil Potassium &lt; 38 ppm:</b> 9VAC25-32-560.B.2.e. requires addition of potash prior to or concurrently with the biosolids if the soil potassium (Mehlich I) is $< 38$ ppm.
Part I.I.6.	<b>Equipment Calibration:</b> 9VAC25-32-560.B.3.d.(1) requires routine measurement of the field application rate of application equipment.
Part I.I.7.	<b>Liquid Biosolids/WTP Residuals:</b> 9VAC25-32-560.B.3.d.(1) limits application of liquid biosolids to 14,000 gallons per acre, per application with drying time between applications.
Part I.I.8.	<b>Grass Height:</b> 9VAC25-32-560.B.3.d.(1) requires hay and pasture to be grazed or clipped to approximately 6 inches prior to biosolids application.
Part I.I.9.	<b>Uniform Application:</b> 9VAC25-32-560.B.3.d.(1) requires a uniform application of biosolids on a field. If application is not uniform additional operational methods are required followed by clipping.
Part I.I.10.	<b>Odor Control by Incorporation:</b> 9VAC25-32-560.B.3.d.(2) allows DEQ or the local monitor to require incorporation, when practical or compatible with a soil conservation plan, to mitigate malodor.
Part I.I.11.	<b>Slope Restrictions:</b> 9VAC25-32-560.B.3.d.(3) prohibits application on slopes $>15\%$ , but allows the restriction to be waived by DEQ for the establishment and maintenance of perennial vegetation or based on BMPs.
Part I.I.12.	<b>Snow Covered Ground:</b> 9VAC25-32-560.B.3.d.(5) allows land application of biosolids on snow cover that is 1 inch or less in depth and the snow and biosolids are incorporated within 24 hours. If the snow melts with application, incorporation is not required.
Part I.I.13.	<b>Setbacks:</b> 9VAC25-32-560.B.3.e.(1) – (4) establishes setback distances and procedures for extending or waiving residential and property line setbacks.
Part I.I.14.	<b>Site Access Restrictions:</b> 9VAC25-32-675.B.5. establishes access restrictions for sites where Class B biosolids have been land applied.
Part I.I.15.	<b>Forestland (Silviculture):</b> 9VAC25-32-560.C. establishes requirements for land application on silvicultural sites.
Part I.I.16.	<b>CPLR Biosolids:</b> 9VAC25-32-313.F establishes criteria for determining the need to track the metals loadings on individual sites where metals subject to the cumulative pollutant loading rates have been applied.
Part I.J.1.	<b>Biosolids/WTP Residuals Sources:</b> 9VAC25-32-305.D. states that no person shall land apply, market or distribute biosolids in Virginia unless the biosolids source has been approved by the board.



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Part I.J.2.	<b>Land Application Sites:</b> 9VAC25-32-305.C. states that no person shall land apply Class B biosolids on any land in Virginia unless that land has been identified in an application to issue, reissue or modify a permit and approved by the board.
Part I.J.3	<b>Pollution Liability and General Liability Requirement:</b> 9VAC25-32-780 establishes liability requirements. 9VAC25-32-790 – 850 provides specific requirements for each type of liability demonstration.
Part I.J.4.	<b>Alteration of Biosolids Composition:</b> 9VAC25-32-560.A.2. prohibits the alteration of the biosolids composition at the land application site.
Part I.J.5.	<b>Site Specific Application Rates:</b> 9VAC25-32-560 states site specific application rates shall not exceed the rates established in the nutrient management plan nor result in exceedance of the cumulative trace element loading rates specified in 9VAC25-32-356 Table 3..
Part I.J.6.	<b>Land Owner Consent Requirement:</b> 9VAC25-32-60.D.4. requires the submission of landowner consent forms with the permit application 9VAC25-32-530.B.2.requires the written agreement between the permittee and the landowner, specifies required information and use of the most current form approved by the board. 9VAC25-32-530.A. requires the permittee to maintain the agreement.
Part I.J.7	<b>Threatened and Endangered Species Protection:</b> 9VAC25-32-313.B states no one shall apply bulk biosolids to the land if it is likely to adversely affect a threatened or endangered species listed in 9VAC25-260-320 or § 4 of the Endangered Species Act (16 USC § 1533) or if the land application is likely to adversely affect its designated critical habitat.
Part I.J.8.	<b>Certified Land Applicator Requirement:</b> § 62.1-44.19.3.1.B. states that Class B biosolids shall not be land applied unless a certified land applicator is onsite at all times during the application. 9VAC25-32-690 requires the land applier to maintain a field log and identifies minimum requirements and sign monthly reports, attesting that they were onsite at al times reported.
Part I.J.9.	<b>Reopener:</b> 9VAC25-32-220 allows a permit to be opened when a change is made in the promulgated standards or regulations on which the VPA permit was based.
Part I.J.10.	<b>Storm Water Discharge Exception:</b> 9VAC25-32-30.A States that all pollutant management activities covered under a VPA permit shall maintain no point source discharge of pollutants to surface waters except in the case of a storm event greater than the 25-year, 24-hour storm.
Part I.J.11.	<b>Materials Handling/Storage:</b> 9VAC25-32-30.B states that except in compliance with the VPA or another permit issued by the board that it is unlawful to discharge into, or adjacent to, state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances.
Part II.	<b>CONDITIONS APPLICABLE TO ALL VPA PERMITS:</b> VPA Permit Regulation 9VAC25-32-80 requires all VPA permits to contain or specifically cite the conditions listed.

## ATTACHMENT A

### LOCATION DESCRIPTION

A description of the field locations and a map showing the field locations are provided below:

Site				
CH 2	1	<b>Acres</b> <b>16.8</b>	<b>L.C. Woodlands ET ALS</b>	702635107100000
CH 2	2	<b>49.1</b>	<b>L.C. Woodlands ET ALS</b>	
CH 2	3	<b>35.6</b>	<b>L.C. Woodlands ET ALS</b>	
	<b>Total</b>	<b>101.5</b>		
CH 4	1	<b>27.7</b>	<b>Marlou Farms LLC</b>	69532240514200
CH 4	2	<b>2.7</b>	<b>Marlou Farms LLC</b>	
CH 4	3	<b>27.4</b>	<b>Marlou Farms LLC</b>	
CH 4	4	<b>14.3</b>	<b>Marlou Farms LLC</b>	
	<b>Total</b>	<b>72.1</b>		
CH 5	1	<b>10.1</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	699631077000000
CH 5	2	<b>9.7</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
CH 5	3	<b>10.0</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
CH 5	4	<b>16.6</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
CH 5	5	<b>7.5</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
CH 5	6	<b>6.2</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
CH 5	7	<b>303.2</b>	<b>Douglas R. Sowers</b>	686635874300000 685637329000000
CH 5	8	<b>112.4</b>	<b>Douglas R. Sowers</b>	688643322200000 690641004800000 688645430500000
CH 5	9	<b>359.7</b>	<b>Douglas R. &amp; Susan S. Sowers</b>	
	<b>Total</b>	<b>835.4</b>		
<b>GRAND TOTAL</b>		<b>1009.0</b>	<b>Revised</b>	
<b>11/29/2012</b>				

**VPA00836\_Chesterfield\_Co\_Synagro\_Central\_LLC**

